



# Energy Efficiency is Big Business

## Utah's Energy Efficiency Potential

Utah Clean Energy Forum

December 9, 2008

# AGENDA

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- **A Daunting Goal**
- **How Much Efficiency Do We Need?**
- **Options for Increasing Efficiency**
- **The Role of Utility Programs**
- **How Can Utility DSM Achieve This Scale?**

# A Daunting Goal

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## 80% Emission Reductions by 2050

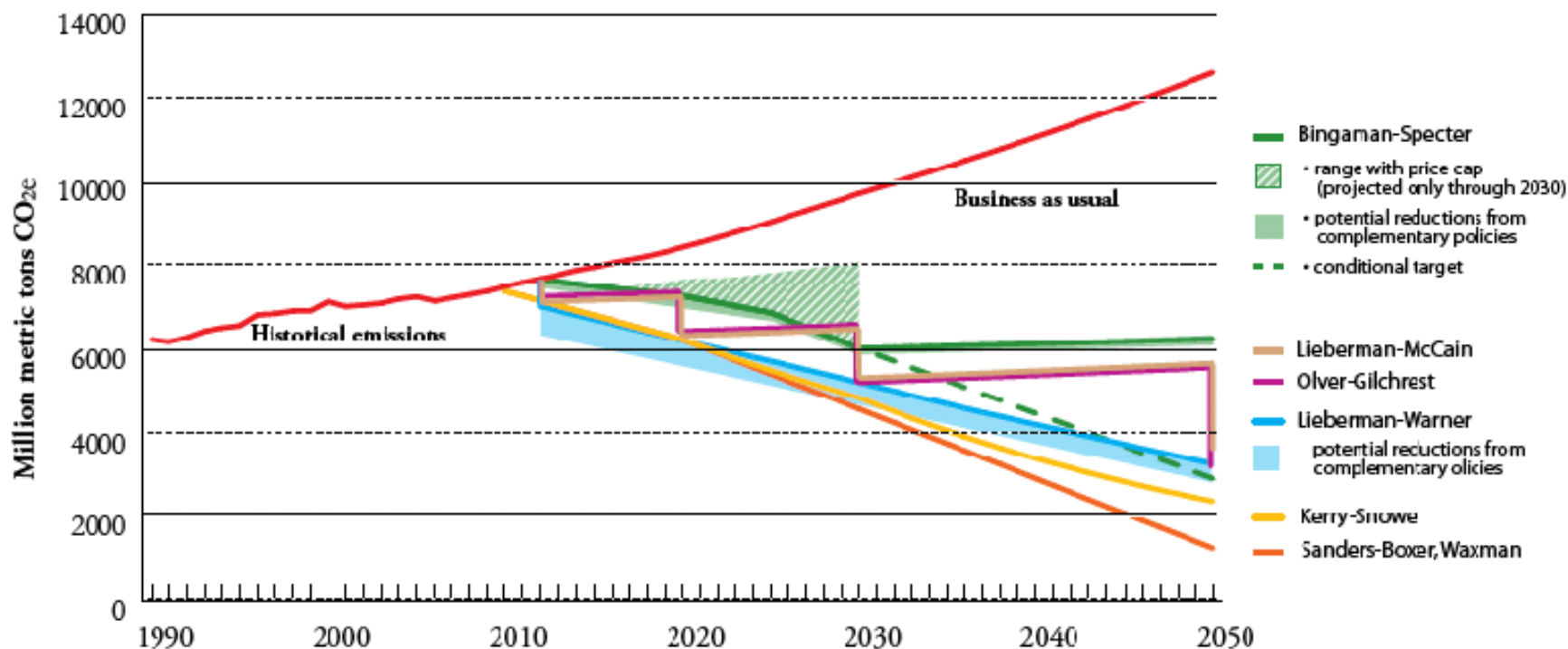
- 20+ states have climate plans, many aiming in the 50% to 80% range (CA, OR, CO, WA, VT, NM, NJ)
- Federal legislative proposals at about 80% by 2050
- Climate Action Partnership (>30 leading businesses and NGO's including ConocoPhillips, Ford, GM, PG&E, GE, Caterpillar, NRDC) aims at 80% cut by 2050

## An Obama “Green Recovery” Stimulus Could Pump Billions into Efficiency

# 80% CO<sub>2</sub> Reductions by 2050 Are Absolutely “On the Table” for the Next Congress

## Comparison of Legislative Climate Change Targets in the 110<sup>th</sup> congress, 1900-2050

December 7, 2007

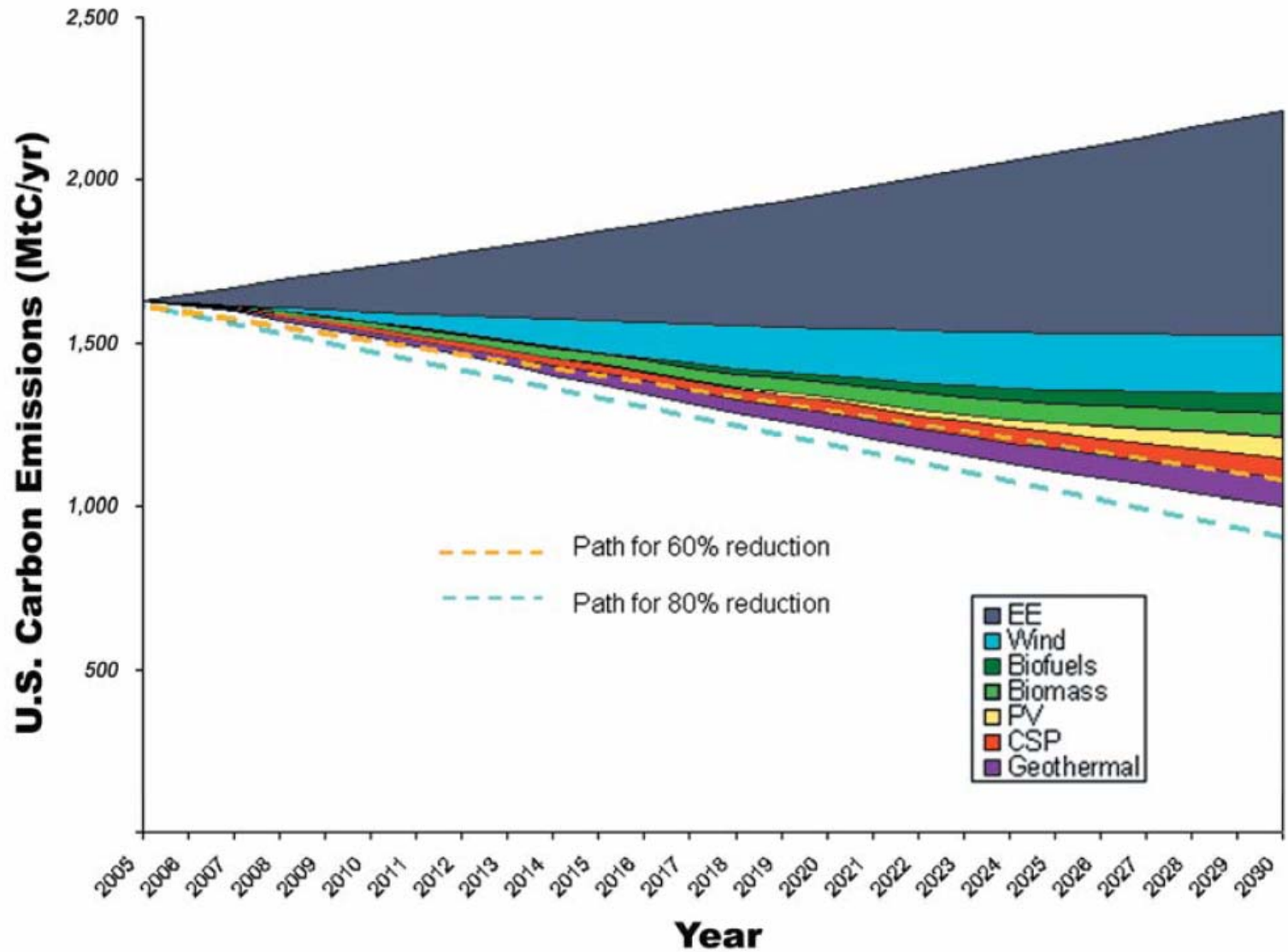


For a full discussion of underlying methodology, assumptions and references, please see <http://www.wri.org/usclimatetargets>. WRI does not endorse any of these bills. This analysis is intended to fairly and accurately compare explicit carbon caps in Congressional climate proposals and uses underlying data that may differ from other analyses. Data post-2030 may be derived from extrapolation of EIA projections.

**Cost**  
Real 2005 dollars per ton CO<sub>2</sub>e

ecps

# American Solar Energy Society: 60% of CO<sub>2</sub> reductions by 2030 from efficiency



# Drivers of Energy Efficiency

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## Today's Drivers

- Energy Codes
- Utility Demand Side Management Programs

## Tomorrow's Drivers?

- Tax Credits
- Direct Federal Stimulus Investment

## Criteria

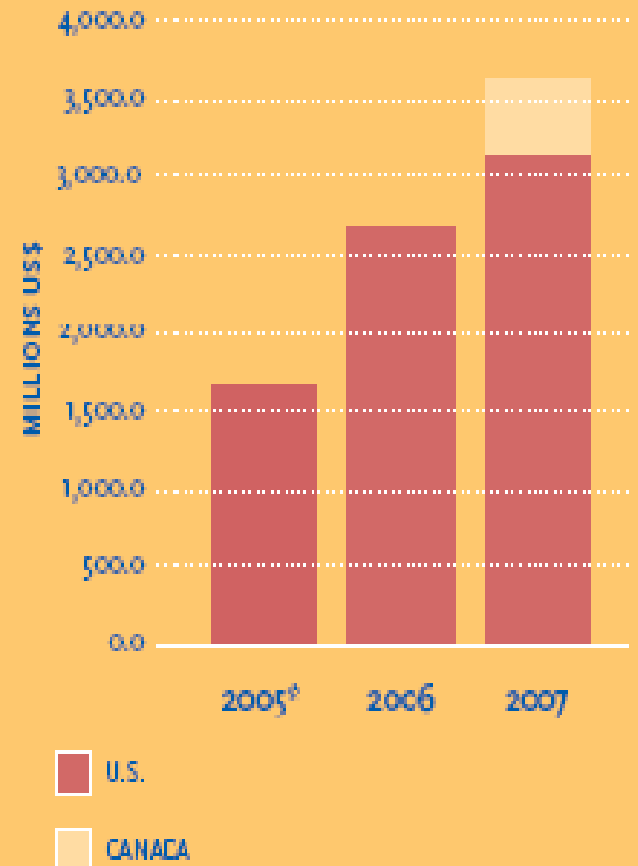
- Measurable
- Verifiable
- Effective Quality Assurance

# Demand Side Management

CEE finds energy efficiency  
growing fast in US and CAN

PacifiCorp ranked 17<sup>th</sup> in DSM  
spending in 2006

## 3 YEARS OF GROWTH IN EFFICIENCY BUDGETS



<sup>†</sup> 2005 DATA DID NOT INCLUDE LOW INCOME OR LOAD MANAGEMENT



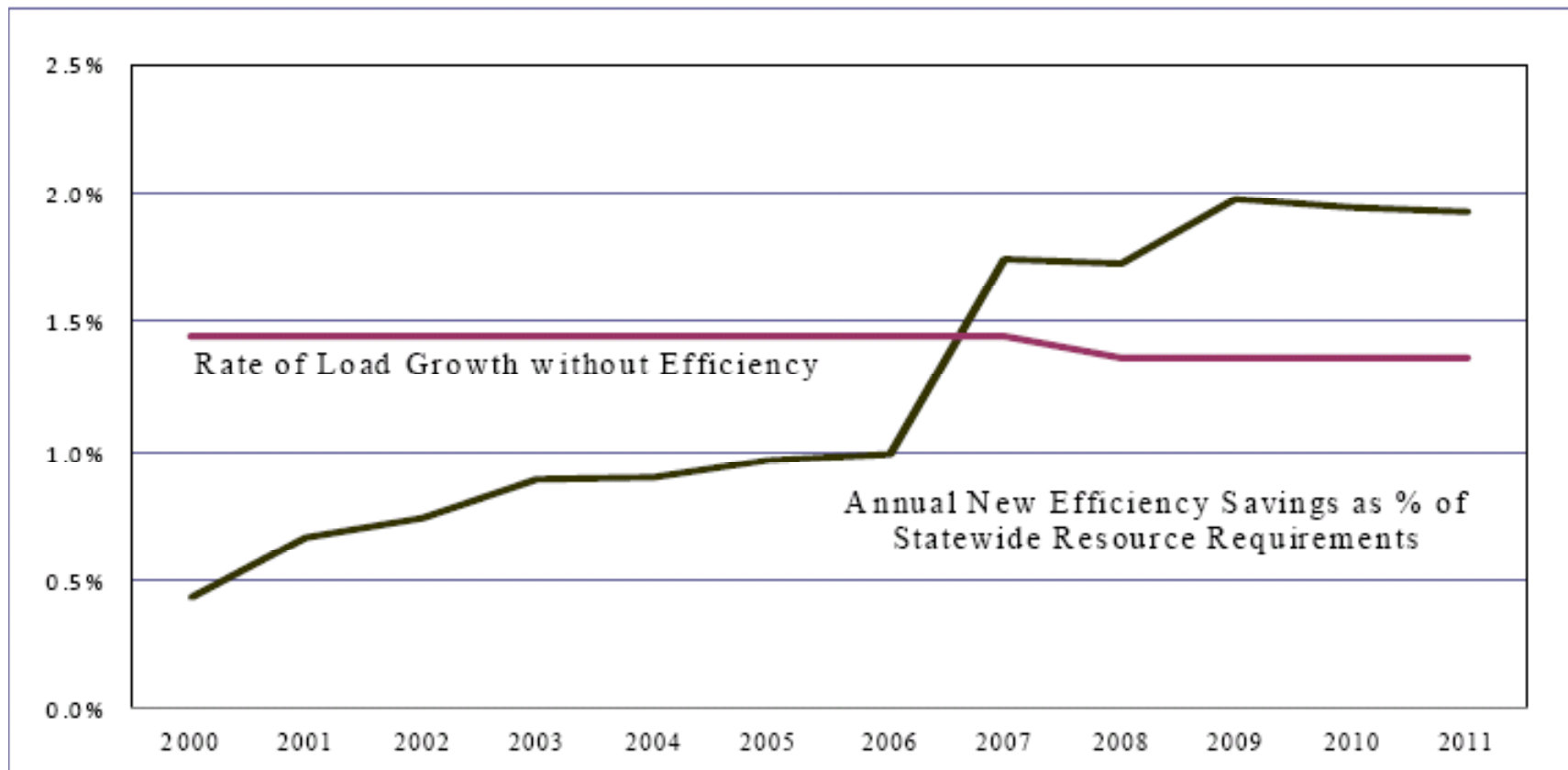
# How Much Bigger Do Annual Utility Efficiency Investments Need to Get? At least 5-15x to Bring Total US CO<sub>2</sub> Emissions Down 9%

	% of Electric Revenues	\$ Per Capita	Total \$
U.S. Utility Total - 2006	0.7%	\$7	\$2.2 billion
Efficiency Vermont - 2008	4.7%	\$49	\$31 million
Connecticut Goal - 2013	~6 to 8%	\$100	\$336 million
National Goal to Capture All Cost Effective Savings	3.5 to 10.5%	\$35 to \$105	\$11 to \$33 billion

- **Current Northwest Average: ~\$20 Per Capita**

# Vermont Achieves Net Decrease in 2007

**Figure 1. Rate of Vermont Efficiency Resource Acquisition Relative to Load Growth**



Source: VEIC, "What Does It Take to Turn Load Growth Negative? A View from the Leading Edge," ACEEE Summer Study, 2008.

# DSM Starts with Regulatory Policy and Resource Assessment

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## The definition of cost-effectiveness

- Including all non-energy benefits seems sensible
- Much higher avoided costs are likely

## Field research on cost-effectiveness of deep savings

- A resource worth billions must be thoroughly researched
- Large scale demonstration programs are needed

## Energy efficiency Resource Assessments...

# David Goldstein on Resource Assessments

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Assessments have been biased:

- Only look at savings achievable thru utility DSM
- Data must be proved beyond reasonable doubt
- Arbitrary reductions for measures not “achievable”
- Failure to look at building systems
- Usually assume no technological progress
- Costs of efficiency often based on immature market

Goldstein points out:

- Goal of assessments have changed
- What was “conservative” is no longer
- The research we need does not exist

# New Sources of Investment Will Help Scale Up DSM

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## Large infusions of investment from:

- Tax credits
- Direct investment from U.S. “Green Recovery” funds
- Revenue from auction of carbon allocation
- “Green collar” workforce development

# New Approaches and Measures

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**Direct install at no cost to energy user**

**Leverage industry support for marketing, education**

## **Promising Sources of DSM Savings**

- Plug in electronics
- Behavior measures
- Control systems
- Energy codes



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